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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,405	12/23/2003	Akihiko Takeuchi	01306.000116	7937
5514	7590	12/14/2004	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO			LEE, PETER	
30 ROCKEFELLER PLAZA			ART UNIT	
NEW YORK, NY 10112			PAPER NUMBER	
			2852	

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/743,405

Applicant(s)

TAKEUCHI ET AL.

Examiner

Peter Lee

Art Unit

2852

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/23/2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. Figure 5 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The disclosure is objected to because of the following informalities:

It is found that throughout the specification, the length  $L_r$  is referred to as a "circumstance"; it is believed it should be "circumference". Therefore:

Replace "circumstance" with --circumference-- on page 4 line 3 and page 4 line 27,

Appropriate correction is required.

### ***Claim Objections***

3. Claims 1 and 6 are objected to because of the following informalities:

Replace "circumstance" with --circumference-- on page 20 line 22 and page 22 line 9.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Yanagawa (US pn 6332066).

Yabagawa teaches a color image forming apparatus (fig. 7) (ie. An image forming apparatus) comprising: photosensitive drums (fig. 7 parts 75-1 and 75-2; note: col. 10 lines 6-10) (ie. image carrying means); and an intermediary belt (fig. 7 part 66; note: col. 10 lines 46-55) (ie. intermediate transfer body) in an endless shape movable and receivable of color toner images from said drums (col. 11 lines 26) at first and second transfer rollers at first and second transfer positions (fig. 7 parts 80 and 81; note: col. 10 lines 46-55), wherein the full color image formed on the belt is transferred to the paper (col. 11 lines 56-63) after passing said first transfer position and said second transfer position again (note: the image formation process can be found on col. 11 lines 25-65), wherein said first transfer position (transfer roller 80 in fig. 7) is a position for transferring to said belt from the nearest drum (fig. 7 part 75-1) on a downstream side in a moving direction of said belt (fig. 7 arrow a) with respect to a position that the color image is transferred from said belt to the paper material at the image transfer position (fig. 7 part 79; note col. 10 lines 63-65), wherein said second transfer position (transfer roller 81 in fig. 7) is a position for transferring to said belt from the nearest drum (fig. 7 part 75-2) on an upstream side in the moving direction of said belt with respect to a position that the color image is transferred

Art Unit: 2852

from said belt to the paper material, and wherein the following formula is satisfied where a distance from said first transfer roller (fig. 7 part 80)(ie. first transfer position) to said second transfer roller (fig. 7 part 81) (ie. second transfer position) along the moving direction of said belt is a predetermined distance (col. 8 lines 58-64)(ie. denoted as  $L_{ab}$ , a belt length in the moving direction is denoted as  $L$  (ie.  $L_r$ ), and a length an image to be formed on the belt and transferred to a paper is denoted as  $l$  (ie.  $L_m$ ); Yanagawa teaches operating the color image forming procedure when the equation,  $L=l + \alpha$ , is satisfied; where  $\alpha$  represents a non-image forming length on the belt. It is essentially possible that the predetermined length taught to be between the two image forming units I and II is included in the variable  $\alpha$ . And because the length  $\alpha$  is taught to vary from being less than  $l$  to greater than  $l$  by no bound amount, the limitation of  $L_r-L_m>L_{ab}$  or  $L_r-L_m\leq L_{ab}$  is taught.

Yanagawa also teaches that the next successive image to be formed will be started at the image forming unit I (fig. 7) while the final layer of the previous toner image is being placed onto the belt (fig. 7 part 66) at the image forming unit II (col. 8 lines 15-24) (ie. at a location upstream in the moving direction of the intermediate transfer body).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagawa in view of Omata et al. (US 2001/0051055).

Yanagawa teaches all of the limitations from which the current claim depends upon. Yanagawa does not teach immobilizing a toner image forming position in the moving direction of the intermediate transfer body.

It is Omata who teaches a color image forming apparatus with four separate developing devices (fig. 2 parts 1a, 1b, 1c, 1d) corresponding to four different colors. In the event that a monochrome image is desired, Omata teaches the stoppage of the other developing devices not being used (page 3 paragraph [0042]) (ie. immobilize a toner image forming position).

It would have been obvious to a person of ordinary skill at the time the invention was made to include such a functionality as shutting off developing devices not being used as taught by Omata when building a color image forming apparatus as taught by Yanagawa. Although the image forming apparatus taught by Omata is seen to have four developing devices whereas Yanagawa only has two separate developing devices on an intermediate transfer body, Yanagawa and Omata are seen as analogous art because they are from the same field of color image forming apparatuses that utilize intermediate transfer bodies. One of ordinary skill in the art would have been motivated to immobilize developing devices not being used in an image formation operation in order to prolong the life of those devices (page 3 paragraph [0042]).

6. Claims 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagawa in view of Yano et al. (US pn 6477339).

Yanagawa teaches all of the limitations pertaining to the claims from which claims 3 and

Art Unit: 2852

7 depend upon. Yanagawa does not teach a toner image of an image being transferred onto said intermediate transfer body after toner images of the previous image are entirely formed on said intermediate transfer body where the images are formed successively.

It is Yano who teaches a color image forming apparatus using an intermediate transfer belt (fig. 6 part 8; note: col. 12 lines 45-55 and on line 57 the prior art refers to intermediate transfer belt 200 but part 200 is not on fig. 6; it is believed on figure 6 part 8 refers to the intermediate transfer belt) (ie. intermediate transfer body) onto which a full color image is transferred to from photosensitive drums (fig.1 parts 11, 12, 13, 14). Yano also teaches, that when the full color image is finished, cleaning devices (fig. 6 parts 61, 62, 63, 64) are put into action to clean each of the photosensitive drums to prepare for the following image formation (col. 5 lines 50-55) (ie. toner image being transferred onto said intermediate transfer body after toner image of previous image are entirely formed). Although the image forming apparatus taught by Yano is seen to have four developing devices whereas Yanagawa only has two separate developing devices on an intermediate transfer body, Yanagawa and Yano are seen as analogous art because they are from the same field of color image forming apparatuses that utilize intermediate transfer bodies.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include a short stoppage time in-between successive image formation actions as taught by Yano, when developing a color image forming device as taught by Yanagawa. One of ordinary skill in the art would have been motivated to have the cease period in order to allow time for sufficient cleaning of the photosensitive drums to rid it of residual toner (col. 5 lines 50-60).

7. Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagawa in view of Heeks et al. (US pn 6336026).

Yanagawa teaches all of the limitations pertaining to the claims from which claims 4 and 8 depend upon. Yanagawa does not teach the intermediate transfer body having a surface resistivity from  $10^7$  Ohm per square to  $10^{12}$  Ohm per square.

It is Heeks who teaches having a transfer member (fig. 2 part 4; col. 9 lines 10-15) (ie. intermediate transfer body) having a single layer with a surface resistivity preferably from  $10^8$  Ohm per square to  $10^{12}$  Ohm per square (col. 10 lines 48-55) (within the range of resistances given by the limitations).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the surface resistivity of an intermediate transfer belt be in the range of  $10^8$  Ohm per square to  $10^{12}$  Ohm per square as taught by Heeks, when building a full color image forming apparatus with an intermediate transfer belt as taught in Yanagawa. One of ordinary skill in the art would have been motivated to use the range taught by Heeks because it allows for sufficient transfer of the image on the belt (col. 2 lines 10-19).

***Allowable Subject Matter***

8. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.



Art Unit: 2852

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Takeyama et al. (US pn 6222566) is being cited for teaching the use of two image forming units that are set apart by a set distance  $d$  and having the length of the intermediate transfer belt satisfy the equation  $L=m+\alpha$ ; where  $m$  indicates a length corresponding to the amount of movement of the paper  $P$  when the image is transferred onto it, and  $\alpha$  represents the length of the belt where an image is not formed.

Motohashi (JP 2002214872) is being cited for teaching an image forming device that utilizes an intermediate transfer belt and recognizes the use and advantage of having two photosensitive drums which each house 2 color developers as an advantage over having 4 photosensitive drums with 1 color developer.

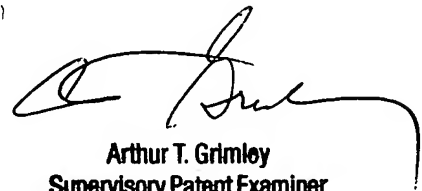
Art Unit: 2852

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Lee whose telephone number is 571-272-2846. The examiner can normally be reached on mon-fri 9:00 am-5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Arthur Grimley can be reached on 571-272-2136. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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